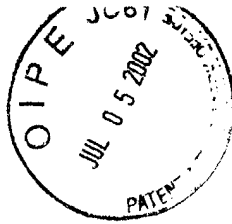


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Sub E2
(g) nucleotide 1784 of SEQ ID NO:15 wherein N is A;
or the complement thereof.

D1
2 183. An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:15 (methylenetetrahydrofolate reductase), the probe comprising at least two of:

- (a) nucleotide 120 of SEQ ID NO:15 wherein N is C;
- (b) nucleotide 464 of SEQ ID NO:15 wherein N is G;
- (c) nucleotide 519 of SEQ ID NO:15 wherein N is T;
- (d) nucleotide 668 of SEQ ID NO:15 wherein N is T;
- (e) nucleotide 1059 of SEQ ID NO:15 wherein N is C;
- (f) nucleotide 1289 of SEQ ID NO:15 wherein N is A;
- (g) nucleotide 1308 of SEQ ID NO:15 wherein N is C; and
- (h) nucleotide 1784 of SEQ ID NO:15 wherein N is A;

or the complement thereof.

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3 184. The probe of claim *1* 182 or *2* 183 comprising no more than 500 contiguous nucleotides of SEQ ID NO:15.

4 185. The probe of claim *1* 182 or *2* 183 comprising no more than 200 contiguous nucleotides of SEQ ID NO:15.

5 186. The probe of claim *1* 182 or *2* 183 comprising no more than 100 contiguous nucleotides of SEQ ID NO:15.

6 187. The probe of claim *1* 182 or *2* 183 comprising no more than 50 contiguous nucleotides of SEQ ID NO:15.

7 188. The probe of claim *1* 182 or *2* 183 comprising DNA.

E
cont'd
~~8~~ 189. The probe of claim ~~182~~¹ or ~~183~~² comprising a peptide nucleic acid.

~~9~~ 190. The probe of claim ~~182~~¹ or ~~183~~² further comprising a detectable label.

~~10~~ 191. The probe of claim ~~190~~⁹ wherein the detectable label is a fluorescent label.

Sub E3
~~11~~ 192. A method comprising:

(a) providing a test sample comprising nucleic acid molecules present in a biological sample obtained from an individual;

(b) contacting the test sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:15, the probe comprising at least one of:

- D1*
- (i) nucleotide 464 of SEQ ID NO:15 wherein N is G;
 - (ii) nucleotide 519 of SEQ ID NO:15 wherein N is T;
 - (iii) nucleotide 668 of SEQ ID NO:15 wherein N is T;
 - (iv) nucleotide 1059 of SEQ ID NO:15 wherein N is C;
 - (v) nucleotide 1289 of SEQ ID NO:15 wherein N is A;
 - (vi) nucleotide 1308 of SEQ ID NO:15 wherein N is C; and
 - (vii) nucleotide 1784 of SEQ ID NO:15 wherein N is A;

or the complement thereof; and

(c) determining if the test sample comprises a nucleic acid molecule that hybridizes to the probe.

~~12~~ 193. A method comprising:

(a) providing a test sample comprising nucleic acid molecules present in a biological sample obtained from an individual;

(b) contacting the test sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:15, the probe comprising at least two of:

- (i) nucleotide 120 of SEQ ID NO:15 wherein N is C;
- (ii) nucleotide 464 of SEQ ID NO:15 wherein N is G;
- (iii) nucleotide 519 of SEQ ID NO:15 wherein N is T;

- Sub
E 3
- (iv) nucleotide 668 of SEQ ID NO:15 wherein N is T;
 - (v) nucleotide 1059 of SEQ ID NO:15 wherein N is C;
 - (vi) nucleotide 1289 of SEQ ID NO:15 wherein N is A;
 - (vii) nucleotide 1308 of SEQ ID NO:15 wherein N is C; and
 - (viii) nucleotide 1784 of SEQ ID NO:15 wherein N is A;

or the complement thereof and

(c) determining if the test sample comprises a nucleic acid molecule that hybridizes to the probe.

DI

~~13~~ 194. The method of claim ~~11~~ ~~12~~ or ~~193~~ wherein the probe comprises no more than 500 contiguous nucleotides of SEQ ID NO:15.

~~14~~ 195. The method of claim ~~11~~ ~~12~~ or ~~193~~ wherein the probe comprises no more than 200 contiguous nucleotides of SEQ ID NO:15.

~~15~~ 196. The method of claim ~~11~~ ~~12~~ or ~~193~~ wherein the probe comprises no more than 100 contiguous nucleotides of SEQ ID NO:15.

~~16~~ 197. The method of claim ~~11~~ ~~12~~ or ~~193~~ wherein the probe comprises no more than 50 contiguous nucleotides of SEQ ID NO:15.

~~17~~ 198. The method of claim ~~11~~ ~~12~~ or ~~193~~ wherein the probe is a DNA probe.

~~18~~ 199. The method of claim ~~11~~ ~~12~~ or ~~193~~ wherein the probe is a peptide nucleic acid probe.

~~19~~ 200. The method of claim ~~11~~ ~~12~~ or ~~193~~ wherein the probe comprises a detectable label.

~~20~~ 201. The method of claim ~~19~~ wherein the detectable label is a fluorescent label.